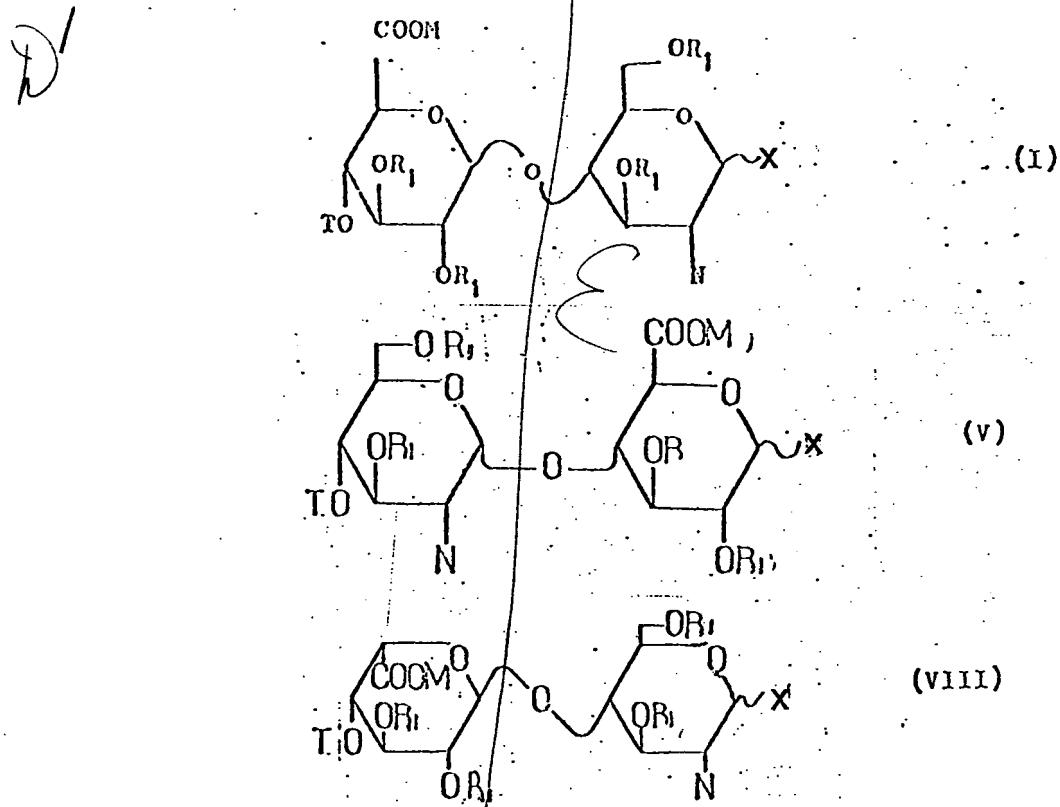


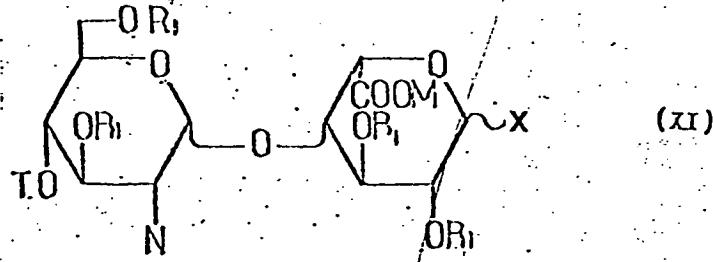
the 4 position of the neighboring saccharide.

50. (Amended) The oligosaccharide of claim 49 having the structure of a heparin or heparin sulfate fragments which comprises,

c1 \rightarrow 4a, [a1 \rightarrow 4b], a1 \rightarrow 4b, a1 \rightarrow 4c and
b1 $\beta\rightarrow$ 4a linkage wherein a is D-glucosamine, b is
D-glucuronic acid and c is L-iduronic acid.

51. (Amended) An oligosaccharide of the formula selected from the group consisting of





wherein

T is hydrogen or a [reactive radical ultimately replaceable] group which can be replaced by a saccharide,

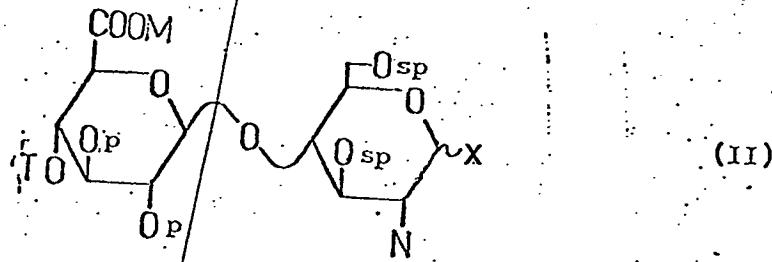
X is OH or a [reactive radical ultimately replaceable] group which can be replaced by a saccharide,

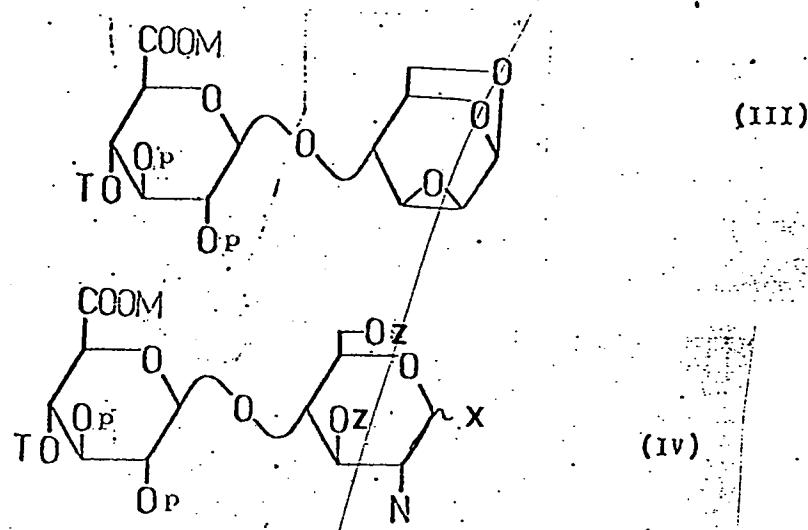
N is a radical containing a nitrogen group or a precursor thereof,

M is hydrogen, a sulfate group or a [reactive radical ultimately replaceable] group which can be replaced by hydrogen, and

R₁ is the same or different and is hydrogen, acyl from 1 to 8 carbons, [substituted] alkyl from 1 to 9 carbons or sulfate.

52. (Amended) An oligosaccharide of the formula selected from the group consisting of





wherein

T is acyl from 1 to 8 carbons, halogenated acyl from 1 to 8 carbons, substituted alkyl from 7 to 19 carbons, O-sulfate ester, O-phosphate ester or hydrogen,

X is O-acyl from 1 to 8 carbons, O-alkyl from 1 to 3 carbons, O-substituted alkyl from 7 to 19 carbons, halogen or imidoyl,

p is substituted alkyl from 7 to 19 carbons, O-sulfate ester, O-phosphate ester or hydrogen,

sp is acyl from 1 to 8 carbons, O-sulfate ester, O-phosphate ester or hydrogen,

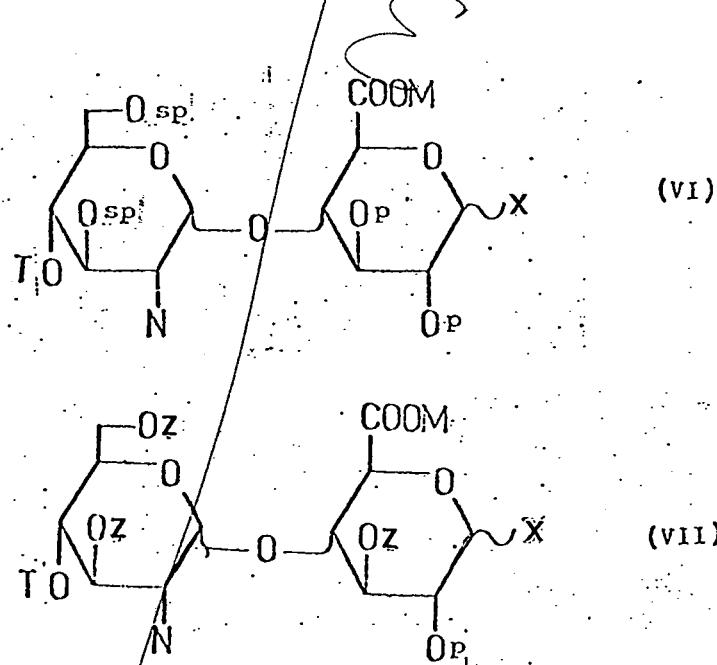
Z is acyl from 1 to 8 carbons, substituted alkyl from 7 to 19 carbons, O-sulfate ester, O-phosphate ester or hydrogen,

M is hydrogen or alkyl from 1 to 3 carbons, and

N is an azide group.

53. (Amended) The oligosaccharide of claim 52 wherein
T is acetyl, monochloroacetyl, trichloroacetyl,
benzyl, paramethoxybenzyl, or hydrogen,
X is O-acetyl, O-methyl, O-benzyl, bromide or imidoyle,
p is benzyl,
sp is acetyl, sulfate ester, phosphate ester or
hydrogen,
Z is benzyl, acetyl or hydrogen, and
M is hydrogen or methyl

54. (Amended) An oligosaccharide of the formula
selected from the group consisting of



wherein

T is acyl from 1 to 8 carbons, halogenated acyl from 1 to 8 carbons, substituted alkyl from 7 to 19 carbons, O-sulfate ester, O-phosphate ester or hydrogen,

X is O-acyl from 1 to 8 carbons, O-alkyl from 1 to 3 carbons, O-substituted alkyl from 7 to 19 carbons, halogen, imidoYL or hydrogen,

p is substituted alkyl from 7 to 19 carbons or hydrogen,

sp is acyl from 1 to 8 carbons or hydrogen,

Z is acyl from 1 to 8 carbons, substituted alkyl from 7 to 19 carbons or hydrogen,

M is alkyl from 1 to 3 carbons or hydrogen, and

N is azide or substituted amine.

55. (Amended) The oligosaccharide of claim 54 wherein
T is acetyl, monochloroacetyl, trichloroacetyl, benzyl paramethoxybenzyl, or hydrogen,

X is O-acetyl, O-methyl, O-benzyl, bromide, imidoYL, O-propenyl, O-allyl or OH,

p is benzyl,

sp is benzyl, acetyl, sulfate ester, phosphate ester or hydrogen,

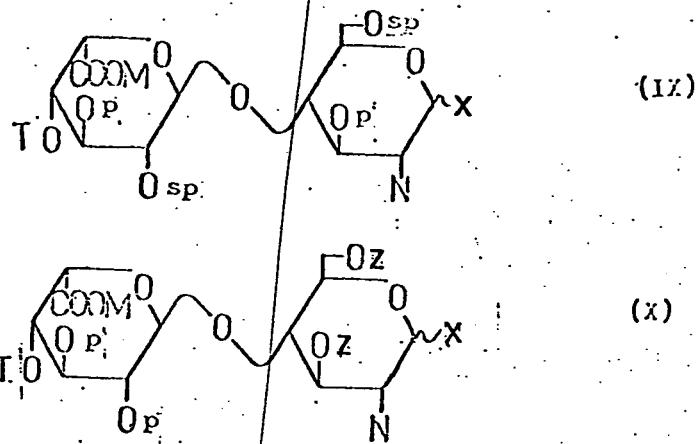
Z is benzyl, acetyl or hydrogen,

M is hydrogen or methyl, and

N is azide or NH-acetyl.

56. (Amended) The oligosaccharide of the formula

selected from the group consisting of



wherein

T is acyl from 1 to 8 carbons, halogenated acyl from 1 to 8 carbons, [substituted aracyl,] substituted alkyl from 7 to 19 carbons or hydrogen

X is O-acyl from 1 to 8 carbons, O-alkyl from 1 to 3 carbons, O-substituted alkyl from 7 to 19 carbons, halogen or imidoyle,

sp is acyl from 1 to 8 carbons, [aryl] substituted alkyl from 7 to 19 carbons or hydrogen,

p is acyl from 1 to 8 carbons, [aryl,] substituted alkyl from 7 to 19 carbons or hydrogen,

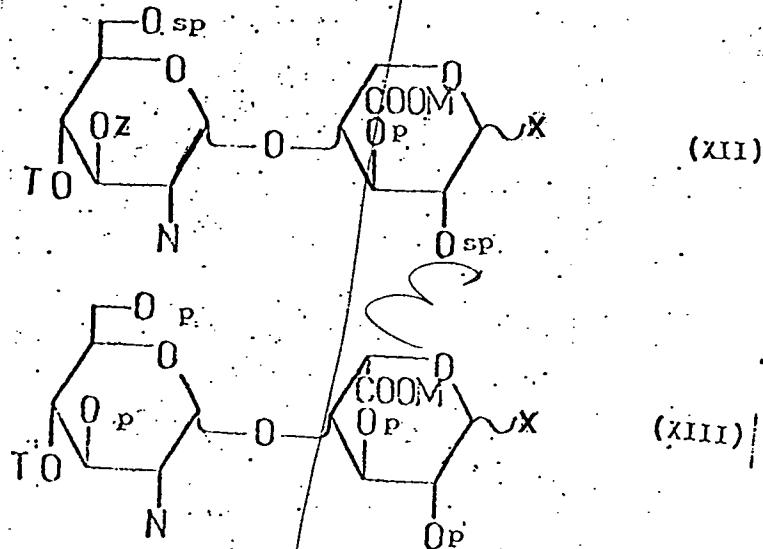
z is acyl from 1 to 8 carbons, [aryl,] substituted alkyl from 7 to 19 carbons or hydrogen,

M is hydrogen or alkyl from 1 to 3 carbons,

N is azide or NHCOO-(substituted alkyl).

57. (Amended) The oligosaccharide of claim 56 wherein
T is acetyl, monochloroacetyl, trichloroacetyl,
benzyl, paramethoxybenzyl or hydrogen,
X is O-acetyl, O-methyl, O-benzyl, bromide or imidoyle,
p is acetyl, benzoyl or benzyl,
sp is acetyl, sulfate ester, phosphate ester, benzoyl
or benzyl,
Z is acetyl, benzoyl or benzyl,
M is hydrogen or methyl, and
N is azide, $\text{NHCOOCH}_2\text{C}_6\text{H}_5$.

58. (Amended) An oligosaccharide of the formula



wherein

T is acyl, halogenated acyl from 1 to 8 carbons,
substituted alkyl from 7 to 19 carbons or hydrogen,
X is O-acyl from 1 to 8 carbons, O-alkyl from 1 to 3
carbons, O-substituted alkyl from 6 to 7 carbons, halogen or

imidoyl,

p is substituted alkyl from 7 to 19 carbons or hydrogen,

sp is acyl from 1 to 8 carbons or hydrogen,

z is acyl from 1 to 8 carbons, substituted alkyl from 7 to 19 carbons or hydrogen,

M is hydrogen or alkyl from 1 to 3 carbons, and

N is azide.

59. (Amended) The oligosaccharide of claim 58 wherein

T is acetyl, monochloroacetyl, trichloroacetyl, benzyl, paramethoxybenzyl, or hydrogen

X is O-acetyl, O-methyl, O-benzyl, bromide or imidoyl,

p is benzyl,

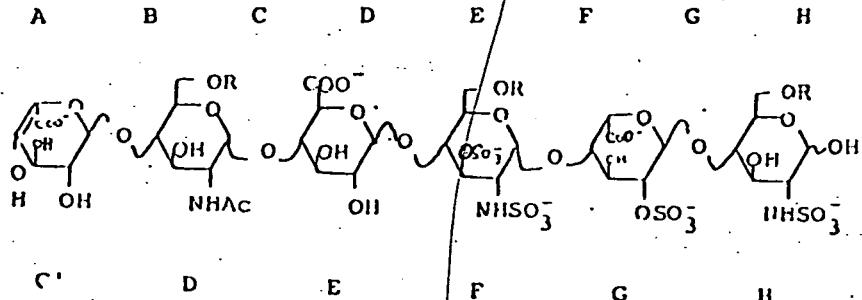
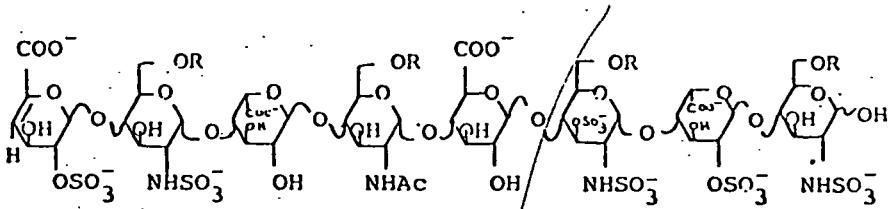
sp is acetyl, sulfate ester, phosphate ester or hydrogen,

Z is benzyl, acetyl or hydrogen, and

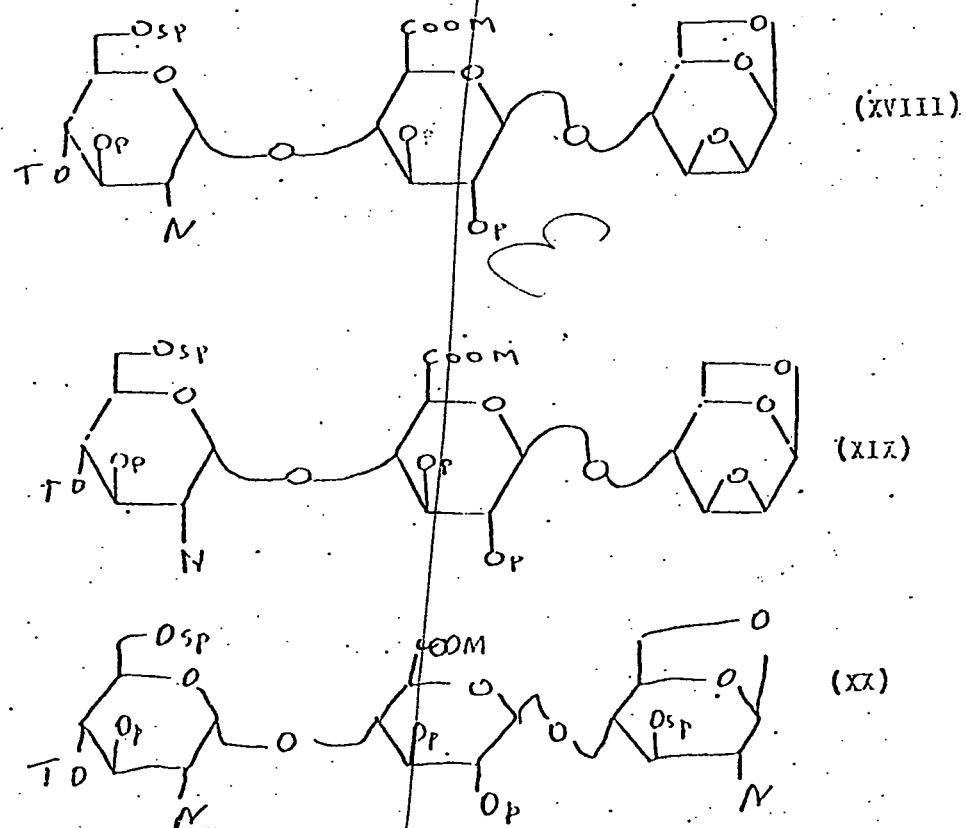
M is hydrogen or methyl.

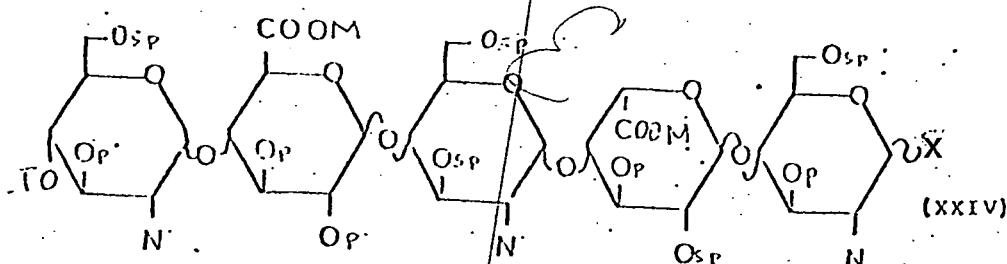
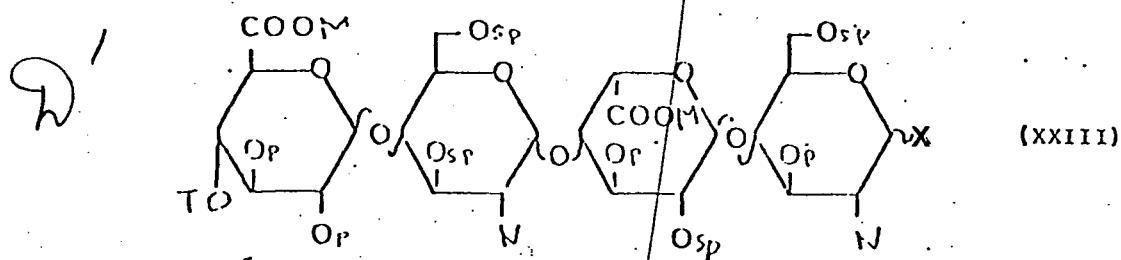
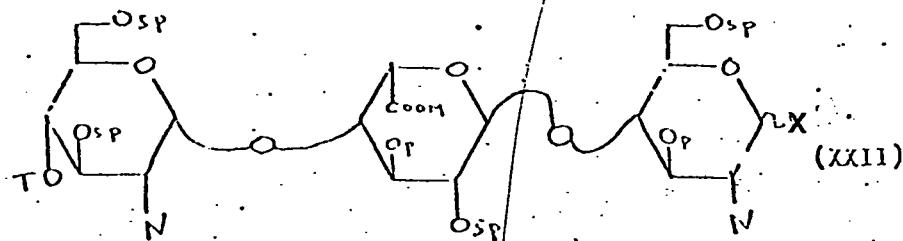
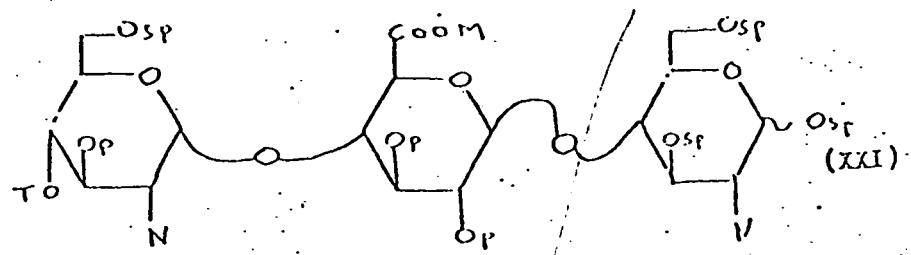
60. (Amended) An oligosaccharide having the structure
selected from the group consisting of

ABCDEFGHI, C'DEFGH, AB, BC, CD, DE, EF, FG, GH, ABC,
BCD, CDE, DEF, EFG, [EFGN,] FGH, ABCD, BCDE, CDEF, DEFG, EFGH,
ABCDE, BCDEF, CDEFG, DEFGH, ABCDEF, BCDEFG, CDEFGH, or BCDEFGH
wherein the letters A, B, C, C', D, E, F, G and H correspond to
the structures of the formulas



61. (Amended) The oligosaccharide [of claim 60]
having the formula selected from the group consisting of





wherein

T is acyl from 1 to 8 carbons, halogenated acyl from 1 to 8 carbons, substituted alkyl from 7 to 19 carbons or hydrogen,

X is O-acyl from 1 to 8 carbons, O-alkyl from 1 to 3 carbons, O-substituted alkyl from 7 to 19 carbons, [halogenated] halogen or imidoyle,

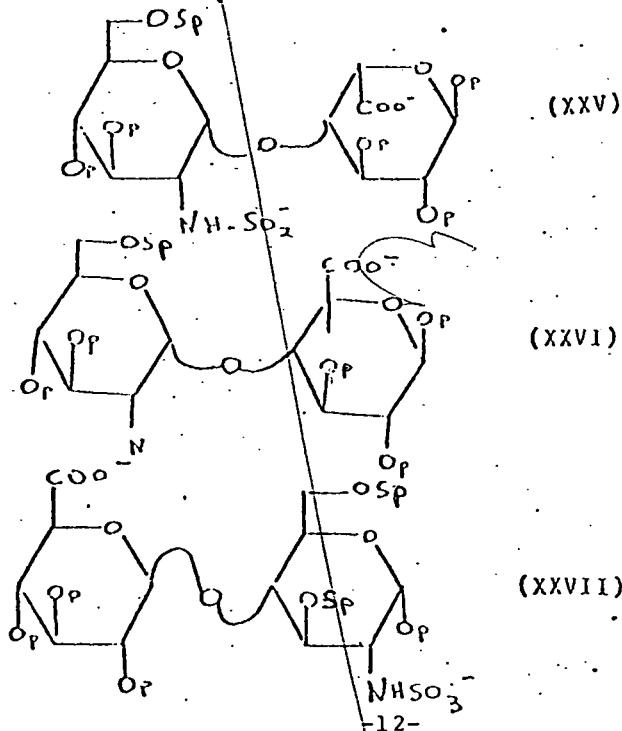
p is substituted alkyl from 7 to 19 carbons or hydrogen,

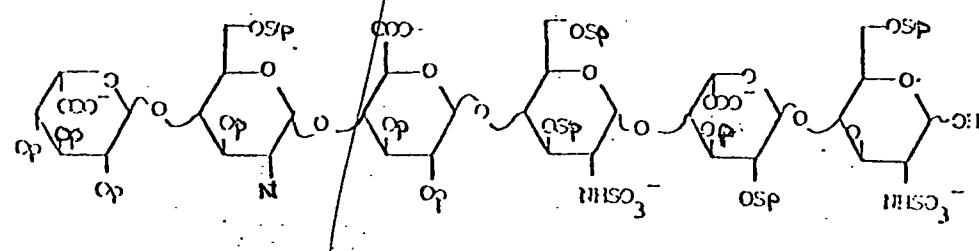
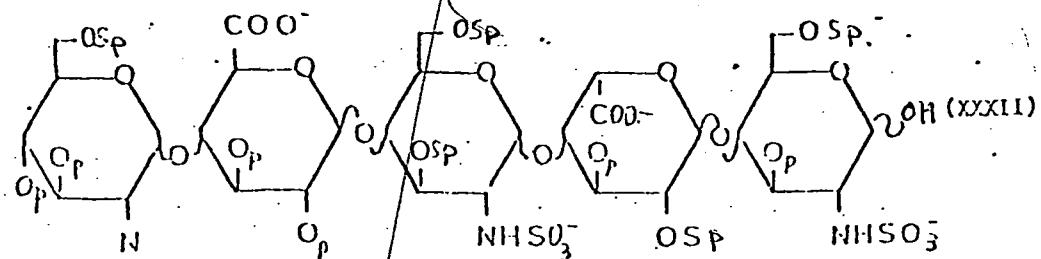
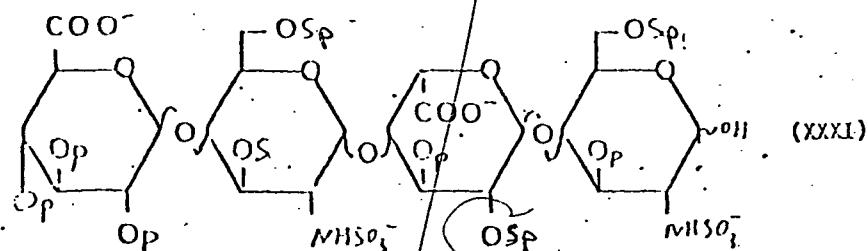
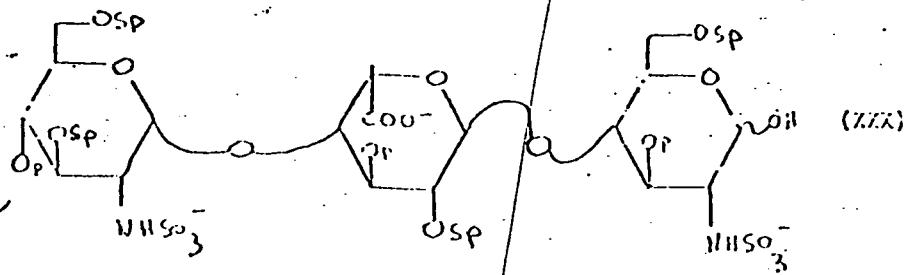
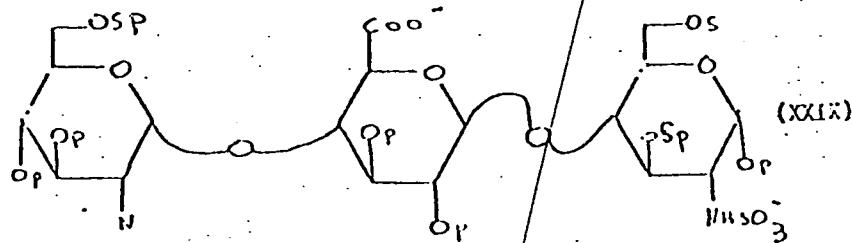
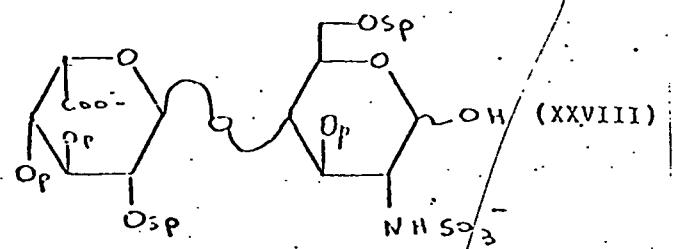
sp is acyl from 1 to 8 carbons or hydrogen,

M is alkyl or hydrogen, and
N is azide, or substituted amino.

62. (Amended) The oligosaccharide of claim 61 wherein
T is acetyl, monochloroacetyl, trichloroacetyl,
benzyl, paramethoxybenzyl or hydrogen,
X is O-acetyl, O-methyl, O-allyl, O-propenyl,
O-benzyl, bromide or imidoyle,
p is benzyl or hydrogen,
sp is acetyl, sulfate ester, phosphate ester or
hydrogen,
M is hydrogen or methyl, and
N is azide, NH acetyl, NHCOO-acetyl or
 $\text{NHCOOCH}_2\text{C}_6\text{H}_5$.

64. (Amended) An oligosaccharide of the formula
selected from the group consisting of





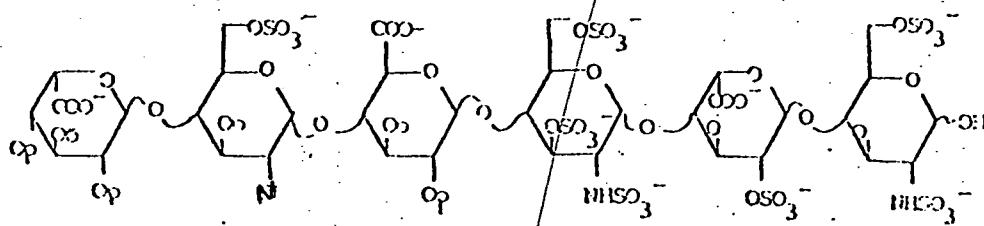
wherein N is NH-acyl or NHSO_3^- ,

①²⁻ p is benzyl or hydrogen,

sp is SO_3^- or H, and its pharmaceutically acceptable salts.

71. (Amended) The pharmaceutical composition of claim

[69] 70 wherein the compound has the formula



(xxxiii)

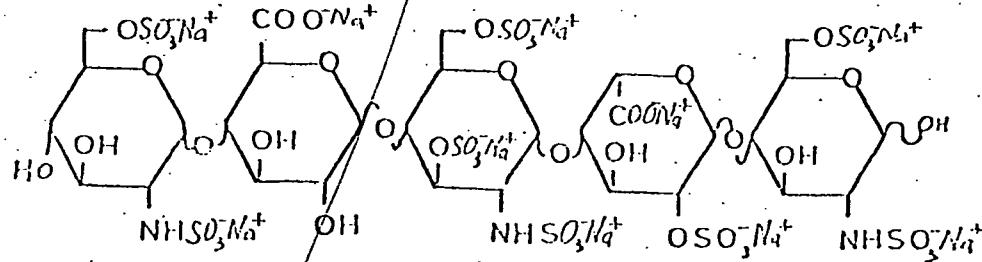
wherein

N is NHSO_3^- or NH-acyl and

p is hydrogen.

72. (Amended) The pharmaceutical composition of claim

[69] 70 wherein the compound has the formula



(50)